LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the present application. Additions to existing claims are identified by underlining. Deletions to existing claims are indicated by ~~strikethrough~~ or [[double brackets]].

1. (Original) A sequence number checker, comprising:

a bit map memory storing a first multiple level bit map representing a first sequence number of a first packet received by said sequence number checker; and

a processor to compute a second multiple level bit map representing a second sequence number of a second packet received by said sequence number checker subsequent to said first packet, said second multiple level bit map being compared to said first multiple level bit map to produce a result indicating actions to be performed on said second packet.

2. (Original) The sequence number checker according to claim 1, further comprising:

a window controller to maintain a sliding window representing a range of sequence numbers; and

a window memory storing a bottom value and a top value for said sliding window.

3. (Original) The sequence number checker according to claim 2, wherein said range of sequence numbers is a fixed size.

4. (Original) The sequence number checker according to claim 2, wherein said range of sequence numbers has a variable sized based upon characteristics of a security association.

5. (Original) The sequence number checker according to claim 1, wherein said bit map memory further comprises:

a partition assigned to said security association.

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6. (Currently Amended) A method ~~of maintaining a window of valid sequence numbers,~~ comprising:

determining characteristics of a security association, the characteristics including a window size, the determining including defining a multiple level bitmap representing sequence numbers of packets; [[and]]

setting a bottom value and a top value to define a window ~~having a variable size~~ based on said window size, said setting including setting at least one bit of the multiple level bitmap; ~~characteristics of said security association.~~

receiving a sequence number for a packet;

comparing said sequence number to said window, said comparison using the multiple level bitmap;

setting a new top value equal to said sequence number if said sequence number is greater than the said top value; and

setting a new bottom value based on said new top value and said window size.

7. (Original) A method for maintaining a window of valid sequence numbers, comprising:

setting a bottom value and a top value to define a window;

receiving a sequence number for a packet;

comparing said sequence number to said window;

setting at least one summary bit in a multiple level bitmap, to set a new top value, if said sequence number is greater than said top value, wherein said at least one summary bit indicates a validity of a contiguous range of bits within said multiple level bitmap; and

setting a new bottom value based on said new top value.

8. (Original) A method for checking sequence numbers, comprising:

receiving a sequence number for a packet;

converting said sequence number to a first multiple level bit map;

retrieving a second multiple level bit map stored in a bit map memory;

dividing said first multiple level bit map into a first plurality of summary bits;

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dividing said second multiple level bit map into a second plurality of summary bits; and

comparing said first and second plurality of summary bits to produce a result indicating validity of said sequence number.

9. (Original) The method according to claim 8, wherein said comparing step further comprises:

setting a value for at least one of said second plurality of summary bits based on said result; and

setting a range of contiguous bits in said second multiple level bit map based on said result.

10. (Original) The method according to claim 9, wherein setting said range of contiguous bits in said second multiple level bit map comprises setting said range of contiguous bits to a value of 0 when at least one of said second plurality of summary bits changes from a value of 0 to a value of 1.

11. (Original) The method according to claim 9, further comprising:

passing said packet upon producing a result indicating said sequence number is valid.

12. (Original) The method according to claim 9, further comprising:

discarding said packet upon producing a result indicating said sequence number is invalid.

13. (Original) An apparatus for maintaining a window of valid sequence numbers, comprising:

means for setting a bottom value and a top value to define a window;

means for receiving a sequence number for a packet;

means for comparing said sequence number to said window;

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means for setting at least one summary bit in a multiple level bitmap, to set a new top value, if said sequence number is greater than said top value, wherein said at least one summary bit indicates a validity of a contiguous range of bits within said multiple level bitmap; and

means for setting a new bottom value based on said new top value.

14. (Original) An apparatus for checking sequence numbers, comprising:

means for receiving a sequence number for a packet;

means for converting said sequence number to a first multiple level bit map;

means for retrieving a second multiple level bit map stored in a bit map memory;

means for dividing said first multiple level bit map into a first plurality of summary bits;

means for dividing said second multiple level bit map into a second plurality of summary bits; and

means for comparing said first and second plurality of summary bits to produce a result indicating validity of said sequence number.

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